

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1 to 20 (Canceled).

21. (Currently Amended) A method of assessing the effectiveness of a neurological or psychiatric treatment of a disorder in a mammalian subject, the method comprising:

~~acquiring~~ calculating a first ~~proton relaxation measurement of a~~ value of a relaxation parameter for a selected region of the brain in a magnetic resonance imaging (MRI) procedure;

administering to the subject a neurological or psychiatric treatment;

~~acquiring~~ calculating a second ~~proton relaxation measurement of a~~ value of a relaxation parameter for the selected region of the brain in an MRI procedure; and

detecting any difference between the first ~~proton relaxation measurement~~ value of the relaxation parameter and the second ~~proton relaxation measurement~~ value of the relaxation parameter, wherein a difference indicates that the treatment has an effect on the subject.

22. (Original) The method of claim 21, wherein the subject is a human patient.

23. (Original) The method of claim 21, wherein the subject is an animal.

24. (Currently Amended) The method of claim 21, wherein the relaxation parameter is T2 and a decrease in a T2 measurement negative difference indicates that the treatment has an effect on the subject.

25. (Currently Amended) A method of assessing the effectiveness of a neurological or psychiatric treatment of a disorder in a subject, the method comprising:

- acquiring a first, pre-treatment proton relaxation measurement for a selected region of the brain in a magnetic resonance imaging (MRI) procedure;

- administering to the subject a pre-treatment challenge that alters a physical or chemical property of cell membranes in the brain of the subject;

- acquiring a second pre-treatment proton relaxation measurement for the selected region of the brain in an MRI procedure;

- detecting any difference between the first pre-treatment proton relaxation measurement and the second pre-treatment proton relaxation measurement, thereby obtaining a pre-treatment challenge result;

- administering a neurological or psychiatric treatment to the subject to treat the disorder;

- acquiring a first, post-treatment proton relaxation measurement for a selected region of the brain in an MRI procedure;

- administering to the subject a post-treatment challenge that alters a physical or chemical property of cell membranes in the brain of the subject;

- acquiring a second post-treatment proton relaxation measurement for the selected region of the brain in an MRI procedure;

- detecting any difference between the first post-treatment proton relaxation measurement and the second post-treatment proton relaxation measurement, thereby obtaining a post-treatment challenge result; and

- comparing the pre-treatment challenge result with the post-treatment challenge result, wherein a difference between the pre-treatment challenge result and the post-treatment challenge result indicates that the treatment has an effect on the subject.

26. (Canceled)

27. (Previously Presented) The method of claim 21, wherein the disorder is a membrane fluidity-related disorder.

28. (Previously Presented) The method of claim 21, wherein the disorder is selected from the group consisting of bipolar disorder, alcoholism, Alzheimer's disease, major depression, and schizophrenia.

29. (Previously Presented) The method of claim 21, wherein the disorder is bipolar disorder.

30. (Previously Presented) The method of claims 21, wherein the disorder is Alzheimer's disease.

31. (Previously Presented) The method of claim 21, wherein the first and second ~~proton relaxation measurements~~ values are ~~a T1 value or a T2 value~~ T1 values or T2 values.

32. (Previously Presented) The method of claim 21, wherein the MRI procedure comprises using incrementally increased or decreased echo times (TE), repetition times (TR), or inversion times (TI).

33. (Previously Presented) The method of claim 21, wherein the MRI procedure comprises acquiring at least 16 images, using an echo planar, spin echo imaging sequence.

34. (Previously Presented) The method of claim 21, wherein the treatment is a candidate psychiatric drug.

35. (Previously Presented) The method of claim 21, wherein the treatment is a candidate neurological drug.

36. (Previously Presented) The method of claim 21, wherein the treatment is a known psychiatric drug.

37. (Previously Presented) The method of claim 21, wherein the treatment is a known neurological drug.

38. (New) The method of claim 25, wherein acquiring the proton relaxation measurements comprise calculated values of a relaxation parameter.